

**Water Body Fact Sheets for 2002  
Section 303(d) List Update  
Lahontan Region**

***MONO HYDROLOGIC UNIT***

**California Regional Water Quality Control Board, Lahontan Region  
2501 Lake Tahoe Boulevard  
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**MONO LAKE, SALINITY/TDS/CHLORIDES**  
**2002 Section 303(d) Fact Sheet**  
**Delisting**

**Evidence to Support Delisting**

Mono Lake is proposed for delisting because (1) its high concentrations of salts and trace elements come from natural sources, and thus are not “pollutants” as defined in the Clean Water Act, and (2) the State Water Resources Control Board’s 1994 Water Rights Decision 1631 establishes conditions to control the lake level, and thus salt concentrations, to ensure attainment of water quality objectives and protection of beneficial uses.

Mono Lake, a designated Outstanding National Resource Water under the Clean Water Act, is nationally and internationally recognized for its unique ecological and recreational values. Mono Lake was listed based on exceedance of the water quality objective for total dissolved solids (76 grams/liter [g/L]) and the potential harm to beneficial uses as a result of projected future increases in salinity. These problems resulted from diversions from streams tributary to Mono Lake by the City of Los Angeles Department of Water and Power.

Mono Lake has accumulated salts and trace elements such as arsenic and boron over geologic time through evaporative concentration of chemicals from natural sources (erosion from its watershed, and volcanic and geothermal sources). Salt concentrations are directly related to lake volume. At an arbitrary “reference” total dissolved solids (TDS) concentration of 100 g/L cited by the National Academy of Sciences, the boron concentration is 475 milligrams per liter (mg/L), one of the highest concentrations in any saline lake. The fluoride concentration is 65 mg/L and the arsenic concentration is 17 mg/L (arsenic concentrations have ranged from 4 to 28 mg/L). Other trace elements concentrations at this TDS level include bromide 50 mg/L, lithium 10 mg/L, iodine 7 mg/L and tungsten 4 mg/L. At the lower TDS level represented by the water quality objective, concentrations of other constituents would be proportionally lower, but there would still be exceedances of drinking water and freshwater aquatic life criteria. Mono Lake is not designated for the municipal and domestic supply (MUN) use, and violations of drinking water standards are not of concern. Regional Board staff’s literature review of scientific literature on saline lakes worldwide shows that, while these lakes may have concentrations of chemicals such as arsenic which exceed freshwater aquatic life criteria, native organisms are adapted to their extreme environmental conditions. Such lakes have their own degree of biological integrity and should not be considered “impaired” in relation to aquatic life and wildlife uses. USEPA (1997) guidance for the development of site specific aquatic life criteria states: *“For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans.”*

**Watershed Characteristics**

Mono Lake is an internally drained lake in Mono County (latitude 38.017°N, longitude 119.008°W). It receives runoff from a number of perennial streams and small lakes originating near the Sierra Nevada crest. The major tributaries were historically Mill, Lee Vining, and Rush Creeks; diversions from Mill Creek have led to larger inflows from Wilson Creek to the north.

## **Mono Lake, Salinity/TDS/Chlorides 2002 303(d) Fact Sheet, Page 2**

Diversions from tributaries of Mono Lake by the Los Angeles Department of Water and Power between 1941 and 1982 resulted in a decline in lake level of about 45 feet and about a 30 percent reduction in lake volume, and substantial environmental damage. Water Rights Decision 1631 will lead to attainment and maintenance of a higher lake level that scientific evidence indicates will protect nesting habitat, maintain long term productivity of brine shrimp and brine fly populations, enhance the scenic quality of the basin, meet applicable water quality standards and ensure compliance with federal air quality standards related to blowing dust.

### **Information Sources**

California Regional Water Quality Control Board, Lahontan Region. 1995. *Water Quality Control Plan for the Lahontan Region*.

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region*.

California Regional Water Quality Control Board, Lahontan Region 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies*.

California State Water Resources Control Board, 1994. Decision 1631, "Decision and Order Amending Water Right Licenses to Establish Fishery Protection Flows in Streams Tributary to Mono Lake and to Protect Public Trust Resources At Mono Lake and In the Mono Lake Basin," September 20, 1994.

California State Water Resources Control Board, 1998. Order WR 98-05 In the Matter of Stream and Waterfowl Habitat Restoration Plans and Grant Lake Operations and Management Plan Submitted by the Los Angeles Department of Water and Power Pursuant to the Requirements of Water Right Decision 1631 (Water Rights Licenses 10191 and 10192, Applications 8042 and 8043).

Jones & Stokes Associates, Inc., 1993. *Draft Environmental Impact Report for the Review of the Mono Basin Water Rights of the City of Los Angeles*. Prepared for California State Water Resources Control Board. May, 1993.

National Academy of Sciences, 1987. *The Mono Basin Ecosystem: Effects of Changing Lake Level*.

U.S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

**GRANT LAKE, ARSENIC**  
**2002 Section 303(d) Fact Sheet**  
**Delisting**

**Evidence to Support Delisting**

Grant Lake in Mono County (HU No. 601.00) is recommended for delisting because the arsenic present comes from natural sources and thus is not a “pollutant” as defined in the Clean Water Act.

Grant Lake was placed on the Section 303(d) list for arsenic based on data summarized in the State Board's Mono Basin EIR. The historical mean concentration of arsenic from the Grant Lake outlet between 1940 and 1990 was 10.80 micrograms per liter (ug/L); the minimum value was 2.00 ug/L and the maximum 20.00 ug/L. The mean concentration exceeded the then-current California Inland Surface Waters Plan standard of 5 ug/L. (This plan was subsequently rescinded because of a court decision.) The historic mean and maximum values exceed the 10 ug/L drinking water standard recently approved by the U.S. Environmental Protection Agency (USEPA). Sacramento perch liver tissue sampled in Grant Lake in 1991 under the State Board's Toxic Substances Monitoring Program had an “elevated” concentration of arsenic when compared with statewide data, but fish livers are not generally consumed, and no fish consumption criterion was exceeded.

The Grant Lake watershed has been affected by past volcanic eruptions from Long Valley Caldera and the Mono and Inyo Craters, which are the probable sources of arsenic. There are no known past or present industrial or agricultural discharges of arsenic in the watershed. Naturally high concentrations of arsenic are present in other waters of the Mono Lake and Owens River watersheds which are not themselves used as drinking water sources but which contribute to the City of Los Angeles municipal supply. The water system “at the tap” meets the current drinking water MCL due to blending. If a lower arsenic standard is adopted, treatment may be needed in the future.

While fishing is an important beneficial use in the June Lakes watershed, the Mono Basin was historically fishless, and current game fish are introduced species. USEPA (1997) guidance for the development of site specific aquatic life criteria states: *“For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans.”* Although delisting is recommended, arsenic should continue to be monitored in Grant Lake and upstream waters. Its effects on beneficial uses such as fish consumption and local domestic water supplies should be assessed further.

**Watershed Characteristics**

Grant Lake is located in the Mono Basin, at latitude 37.862° N, longitude 119.104°W. It is a reservoir constructed by enlarging a natural lake through an early irrigation dam and then through a larger dam constructed in 1941 by the Los Angeles Department of Water and Power (LADWP). The lake's surface acreage was increased from 150 to 1094 acres. The current maximum potential storage is 45, 575 acre-feet. Grant Lake stores water from the Rush Creek watershed and water exported from Parker, Walker, and Lee Vining Creeks for export to the Owens River Basin through the Mono Craters Tunnel. The export volume was formerly about 83,000 afa. Releases are now

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subject to conditions in State Board Water Rights Decision No. 1631 for the protection of Mono Lake and Rush Creek.

**Information Sources**

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region*.

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine Naturally Impaired Waters of the Lahontan Region*, April 2000.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies*.

California State Water Resources Control Board, Toxic Substances Monitoring Program database.

California State Water Resources Control Board, 1991. *California Inland Surface Waters Plan: Water Quality Control Plan for Inland Surface Waters of California*, 91-12 WQ, April 1991.

California State Water Resources Control Board, 1994. Decision 1631, "Decision and Order Amending Water Right Licenses to Establish Fishery Protection Flows in Streams Tributary to Mono Lake and to Protect Public Trust Resources At Mono Lake and In the Mono Lake Basin," September 20, 1994.

California State Water Resources Control Board, 1998. Order WR 98-05 In the Matter of Stream and Waterfowl Habitat Restoration Plans and Grant Lake Operations and Management Plan Submitted by the Los Angeles Department of Water and Power Pursuant to the Requirements of Water Right Decision 1631 (Water Rights Licenses 10191 and 10192, Applications 8042 and 8043).

Jones & Stokes Associates, Inc., 1993. *Draft Environmental Impact Report for the Review of the Mono Basin Water Rights of the City of Los Angeles*. Prepared for California State Water Resources Control Board. May, 1993.

U.S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

U.S. Environmental Protection Agency, 2001. EPA to Implement 10ppb [sic] Standard for Arsenic in Drinking Water. USEPA Office of Water, EPA 815-F-01-010, October 2001. Available on the Internet: <http://www.epa.gov/safewater/ars/ars-oct-factsheet.html>.